

Food Processing Industry

*Gerber Products Company
Fremont, Michigan*



Case Study



SINCE 1928, GERBER PRODUCTS COMPANY OF FREMONT, MICHIGAN HAS BEEN ONE OF THE MOST INTERNATIONALLY RECOGNIZED PROCESSORS OF BABY FOOD.

Originally founded as the Fremont Canning Company, Gerber Products Company grew its operations internationally, and in 1994 was acquired by Sandoz Ltd., which merged with Ciba-Gigey in 1996 to form the Swiss company, Novartis AG. Although Gerber Products was founded in the small town of Fremont, Michigan, its consumer success and satisfaction over the decades has allowed the company to become a major player in the U.S. baby food market. The Fremont facility supplies product throughout the U.S. and Canada. The total Gerber U.S. operation provides product to 50 foreign countries.



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WATER USE-CHALLENGES & SOLUTIONS

The food processing industry is traditionally a water-intensive operation. Water is used throughout the production process for food cleaning, sanitizing, peeling, cooking, cooling and equipment cleaning. In recent years, the enforcement of wastewater discharge regulations has presented an added challenge to the industry.

The original wastewater treatment system at the facility was built in 1952. Over the years there have been several expansions, the last being completed in October of 2000. All wastewater discharges from the production facility are transported 3 miles to Gerber's rural wastewater treatment plant. Wastewater is aerated in an above ground concrete equalization basin with a

MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY
ENVIRONMENTAL SCIENCE AND SERVICES DIVISION
PO BOX 30457
LANSING MI 48909-7957



www.michigan.gov/deq
Environmental Assistance Center
800-662-9278

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maximum capacity of 3 million gallons. Treated wastewater is then spray-irrigated on field crops as the final stage of treatment. This reuse of treated wastewater provides a sustainable source of specific nutrients such as phosphorus and nitrogen back to crops like corn and alfalfa. Alfalfa naturally fixes nitrogen in the soil and keeps that nutrient available for plant uptake, thus, minimizing the leaching of nitrogen into groundwater.

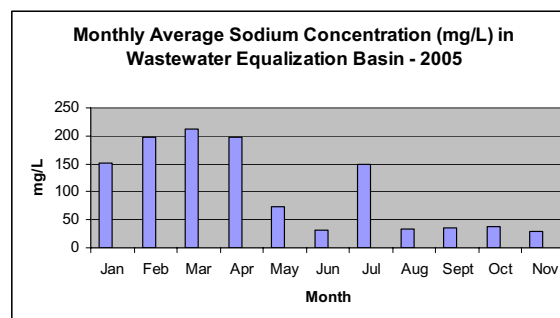
A major challenge associated with spray irrigation, however, is the suspended organic matter or BOD (biochemical oxygen demand) and the dissolved chemicals such as chlorides and salts or COD (chemical oxygen demand) in the food processing wastewater. High BOD/COD concentrations allow for the growth of anaerobic bacteria and the formation of organic acids in saturated, sandy soils which can cause naturally occurring metals such as iron and manganese to leach into the groundwater.

Many processes in the food industry require the use of water softeners. To address challenges relating to potential groundwater impacts from the use of water softening agents, Gerber participated in the RETAP (Retired Engineer Technical Assistance Program) internship program. The RETAP Internship Program places engineering interns from universities in small to medium size Michigan businesses to help integrate pollution prevention technologies at little or no cost to the company. The 2003 DEQ/Gerber project focused on water conservation and water softener use.

The RETAP intern was responsible for tracking and labeling all soft water usage points and soft water lines. Ultrasonic flow meters were used to quantify the flow of softened water to each department. The intern then consulted with department supervisors in order to identify if the existing flow could be reduced without impacting

productivity. Using previous discharge data, engineers were able to quantify an appropriate reduction in the distribution of soft water throughout the plant.

Early in 2005, Gerber also replaced water softening agents containing sodium chloride with a product containing potassium chloride. Although the conversion from the sodium-based product to a potassium product was more expensive, the residual potassium in the irrigated wastewater will have higher agricultural benefits and reduce the threat to groundwater quality. The graph below demonstrates the reduced concentrations of sodium in the equalization basin. The annual average sodium concentrations in 2004 were 237.7 mg/L and in 2005 they were reduced to 93.4 mg/L reducing the impact of sodium on groundwater quality by 60%.



Reduction of sodium concentrations after potassium chloride changeover in early 2005.

SUSTAINABLE PACKAGING

In May, 2006 Gerber converted to packaging their dry cereal products in boxes containing 100% post consumer recycled materials. Other product packaging changes include a changeover of some products from glass jars to recyclable plastic containers. This change out reduces energy and water use for the company

and brings added value into its overall profitability. Over the last 5 years water usage has decreased from approximately 8 gallons/doz. packed product to 6.1 gallons/doz. packed product today. The total result of this effort has conserved an estimated 476,000,000 gallons of water in the production process over that time period.

As a global corporation with more than 125 sites world-wide, Novartis has set a corporate goal of 2% reduction in annual energy use in 2006. Global reductions of green house gases such as CO₂ are a priority for many large companies as they move into the sustainable business arena. Gerber Products is setting a high standard for improved environmental performance in the Food Processing Industry in Michigan.

FUTURE CONSIDERATIONS

As Gerber looks to the future, they show no sign of slowing down their initiatives in pollution prevention, energy efficiency and water conservation. Remaining flexible to the ever changing environmental challenges, the Gerber Products Co. continues to explore new and innovative ways to reduce their environmental footprint.

The company is continuing an on-going evaluation of its high water use areas to strive to reduce any unnecessary wastewater and associated BOD and is currently researching the installation of a dry vacuum hopper system that is projected to reduce BOD in wastewater by 10%.

The on-site creation and use of alternative energy sources such as methane is another area Gerber is actively pursuing. In the future, methane gas

generated from the anaerobic digestion of organic waste from processing activities may be used to augment the facility's intensive energy needs. Implementation of this technology may also reduce BOD concentrations in the wastewater and help to offset water treatment and energy costs.

As a leader in the food processing industry in Michigan and the world, Gerber Products is demonstrating sustainable business practices in the local and global community by:

- Supporting local agriculture.
- Remaining competitive and economically viable.
- Committing to the reduction of their environmental footprint.

Additional pollution prevention information for the Food Processing Industry is accessible on the Michigan Department of Environmental Quality web site at:
<http://www.michigan.gov/deq> or by calling the Environmental Assistance Center at 1-800-662-9278

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